

Abstract of the Disclosure

A chemical imaging system is provided which uses a near infrared radiation microscope. The system includes an illumination source which illuminates an area of a sample using light in the near infrared radiation wavelength and light in the visible wavelength. A multitude of spatially resolved spectra of transmitted, reflected, emitted or scattered near infrared wavelength radiation light from the illuminated area of the sample is collected and a collimated beam is produced therefrom. A near infrared imaging spectrometer is provided for selecting a near infrared radiation image of the collimated beam. The filtered images are collected by a detector for further processing. The visible wavelength light from the illuminated area of the sample is simultaneously detected providing for the simultaneous visible and near infrared chemical imaging analysis of the sample. Two efficient means for performing three dimensional near infrared chemical imaging microscopy are provided.